(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property **Organization** International Bureau





(43) International Publication Date 13 May 2004 (13.05.2004)

(10) International Publication Number WO 2004/040052 A1

(51) International Patent Classification⁷: D05B 21/00, 39/00

D05C 9/06.

[JP/JP]; C/O HAPPY Industrial corporation, 9-16, Miya-

(21) International Application Number:

PCT/JP2003/014030

(22) International Filing Date: 31 October 2003 (31.10.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 2002-319767

1 November 2002 (01.11.2002)

(71) Applicant (for all designated States except US): HAPPY INDUSTRIAL CORPORATION [JP/JP]; 9-16, Miyamachi 5-chome, Yamagata-shi, Yamagata 990-0057 (JP).

(72) Inventor; and

(75) Inventor/Applicant (for US only): HARADA, Keitaro

machi 5-chome, Yamagata-shi, Yamagata 990-0057 (JP).

(74) Agents: AOKI, Atsushi et al.; A. AOKI, ISHIDA & AS-

SOCIATES, Toranomon 37 Mori Bldg., 5-1, Toranomon 3-chome, Minato-ku, Tokyo 105-8423 (JP).

(81) Designated States (national): CN, IN, KR, US.

(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

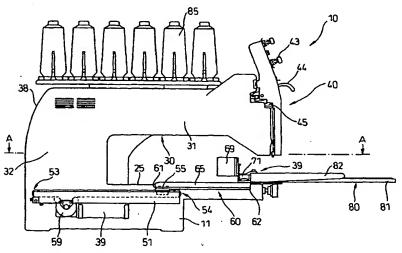
Published:

with international search report

before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SEWING MACHINE



(57) Abstract: A sewing machine comprises an arm including a vertical portion and a horizontal portion having at least one sewing needle mounted thereon, a bed extending in parallel to the horizontal portion under the horizontal portion of the arm, two first rails extending in parallel to the bed in the neighborhood of the side portion of the vertical portion of the arm, first carriages adapted to slide on the first rails, respectively, and a second rail connected to the first carriages and perpendicular to the first rails, wherein the distance between the two first rails is shorter than or equal to the length of the second rail, the sewing machine further comprising a second carriage adapted to slide on the second rail, and an embroidery frame unit mounted on the second carriage on the side portion of the second rail located far from the vertical portion of the arm, wherein the first carriages are located on one side of the second rail, and the embroidery frame unit is located on the other side of the second rail. The sewing machine is thus capable of embroidery without being limited by the distance between the rails.